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Using Thinking Blocks to Encourage the Use of Higher Order Thinking Skills among Students When Solving Problems on Fractions

Authors : Abdul Halim Abdullah, Nur Liyana Zainal Abidin, Mahani Mokhtar

Abstract : Problem-solving is an activity which can encourage students to use Higher Order Thinking Skills (HOTS). Learning fractions can be challenging for students since empirical evidence shows that students experience difficulties in solving the fraction problems. However, visual methods can help students to overcome the difficulties since the methods help students to make meaningful visual representations and link abstract concepts in Mathematics. Therefore, the purpose of this study was to investigate whether there were any changes in students’ HOTS at the four highest levels when learning the fractions by using Thinking Blocks. 54 students participated in a quasi-experiment using pre-tests and post-tests. Students were divided into two groups. The experimental group (n=32) received a treatment to improve the students’ HOTS and the other group acted as the control group (n=22) which used a traditional method. Data were analysed by using Mann-Whitney test. The results indicated that during post-test, students who used Thinking Blocks showed significant improvement in their HOTS level (p=0.000). In addition, the results of post-test also showed that the students’ performance improved significantly at the four highest levels of HOTS; namely, application (p=0.001), analyse (p=0.000), evaluate (p=0.000), and create (p=0.000). Therefore, it can be concluded that Thinking Blocks can effectively encourage students to use the four highest levels of HOTS which consequently enable them to solve fractions problems successfully.

Keywords : Thinking Blocks, Higher Order Thinking Skills (HOTS), fractions, problem solving
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